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Toshihide TAKAHASHI

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For: LAMP MOUNTING APPARATUS

Examiner: A. Ton

VERIFICATION OF TRANSLATION

The undersigned hereby declares the following:

That I am knowledgeable in Japanese and English. That I have reviewed the certified copy of the priority document, JP 2002-276670, filed September 24, 2002, and verify that the attached document is an accurate translation thereof.

All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true. Further, these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

May 5, 2006

Date

Maki Hatsumi



JAPAN PATENT OFFICE

This is to certify that the annexed is a true copy of the following application as filed with this Office.

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Date of Application September 24, 2002

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Application Number JP 2002-276670

Application Number: [JP2002-276670]

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Applicant(s):

August 11, 2003

Commissioner Patent Office

Yasuo Imai

Commissioner Japan Patent Office

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[Name of Document] Specification

[Title of the Invention] LAMP MOUNTING APPARATUS

[Claims]

[Claim 1] A lamp mounting apparatus, comprising:

an outer panel member mounted on a frame member of a vehicle to define a part of an outer surface of the vehicle;

a lamp unit disposed adjacently to said outer panel member;

a positioning projection protruded from one of said outer panel member and said lamp unit;

a positioning hole formed in the other one of said outer panel member and said lamp unit, and into which said positioning projection is capable of being inserted;

positioning abutment parts provided in respective ones of said lamp unit and said outer panel member, and are abutted on each other with said positioning projection being inserted into said positioning hole, to thereby position said lamp unit at a predetermined location in a protruding direction of said positioning projection;

a first temporal fastening member protruded from one of said lamp unit and said frame member, and comprising a plurality of engaged parts arranged in a connected row arrangement in the protruding direction of said positioning projection; and

a second temporal fastening member provided in the other one of said lamp unit and said frame member, and comprising engaging parts to be engaged with said engaged parts of said first temporal fastening member.

[Claim 2] A lamp mounting apparatus according to claim 1, wherein said first temporal fastening member is a shaft-like member comprising a plurality of projections formed on an outer circumference thereof in a manner extending in a circumferential direction thereof.

[Claim 3] A lamp mounting apparatus according to claim 2, wherein said second temporal fastening member comprises an annular member comprising engaging parts to be engaged with said projections of said first temporal fastening member, said engaging parts being formed on an inner circumferential surface of said second temporal fastening member.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention relates to a lamp mounting apparatus that can improve the appearance quality of a vehicle.

[0002]

[Related Background Art] In the case where a lamp unit is disposed adjacently to an outer panel member that defines a part of the outer surface of a vehicle, the lamp unit is positioned on the outer panel member and then fixed to the vehicle body at a predetermined location thereof using bolts or the like so that the appearance quality of the vehicle can be improved. Accordingly, the lamp unit is provided with a positioning projection, and the outer panel member is provided with a positioning hole. The lamp unit is also provided with a temporal fastening member that temporarily fastens the main body of the lamp unit to a frame member of the vehicle in a state in which the lamp unit is positioned with its positioning projection being inserted into the positioning hole. Productability is improved because the temporal fastening member, the positioning projection, and the positioning hole cooperate with one another to maintain the lamp unit in a positioned state between the positioning and fixing stages.

[0003] Generally, dispersion in a relative position occurs between the outer panel member and the frame member. Therefore, if a relative position between the lamp unit and the outer panel member is determined, dispersion occurs between the lamp unit and the frame member, and thus dispersion occurs between the lamp unit and the outer panel member.

[0004] Despite the deficiency, a lamp mounting apparatus, in which a lamp unit temporarily attached to a frame member while the lamp unit is being positioned with respect to an outer panel, such that the lamp unit can be maintained at a positioned state is disclosed, for example, in Japanese Laid-Open Patent Publication (Kokai) No. 11-48856. In this lamp mounting apparatus, the positioning is done by inserting a protrusion, extending from the lamp unit towards a rear of the vehicle, into a positioning hole provided in the outer panel. Further, the lamp unit has a plurality of temporary positioning pins for temporary positioning formed in the protrusion at a predetermined intervals, and the frame member is provided with a temporary positioning clips adapted to be engaged with the positioning pins. The positioning holes has a shape that allows

the lamp unit to be positioned with respect to the width direction of the vehicle, and the clips and the pins are provided such that they can be engaged while allowing a relative movement in the width direction of the vehicle. Therefore, the pins can be engaged with the clips while the positioning projection is inserted into the positioning hole. At this time, the lamp unit is positioned with regard to the width direction of the vehicle by the projection and the hole, and fixed in a vertical direction of the vehicle by the pin and the clip.

[0005] As stated above, according to the lamp mounting apparatus, the lamp unit is temporarily attached to the frame member while being positioned with respect to the outer panel member, and the lamp unit can be maintained at the positioned state. This lamp mounting apparatus, however, positions the lamp unit on an outer panel member only in the direction of the vehicle width.

[0006] A lamp mounting apparatus, in which positioning of the lamp unit is made not only with regard to the outer panel member in the width direction of the vehicle, but also in the vertical direction of the vehicle is in practice as described in the following. A lamp unit is positioned by inserting a positioning projection extending in a longitudinal direction of the vehicle in a positioning hole provided in the outer panel member. Further, the lamp unit has a plurality of temporary positioning pins for temporary positioning provided in the projection at predetermined intervals. The positioning hole has a shape, such that the lamp unit can be positioned in the vehicle width direction and in the vertical direction, the temporary positioning clips and pins can be engaged such that they can be moved in the width direction of the vehicle, and the clip and the frame member are engaged while allowing a relative movement in the vertical direction of the vehicle. Therefore, the pins and clips can be engaged while the positioning projection is inserted into the positioning hole, and at that time, the lamp unit is fixed by the projection and the hole in the width and vertical directions, and fixed by the pins and the clips in the longitudinal direction of the vehicle.

[0007] As stated in the foregoing, according to the lamp positioning apparatus. The lamp unit is temporarily positioned to the frame member while being positioned with respect to the outer panel member, and thus the lamp unit can be maintained at the positioned state. However, positioning of the lamp unit with respect to the outer panel member is made only with respect to the width and vertical directions of the vehicle.

[0008]

[Problems to be Solved by the Invention] This invention has been conceived in view of the foregoing problems, and the object of the invention is to provide more improved lamp mounting apparatus.

[0009]

[Means for Solving the Problem]

In order to solve the foregoing problems, the lamp mounting apparatus of the present invention, according to claim 1, includes an outer panel member mounted on a frame member of a vehicle to define a part of an outer surface of the vehicle; a lamp unit disposed adjacently to said outer panel member; a positioning projection protruded from one of said outer panel member and said lamp unit; a positioning hole formed in the other one of said outer panel member and said lamp unit, and into which said positioning projection is capable of being inserted; positioning abutment parts provided in respective ones of said lamp unit and said outer panel member, and are abutted on each other with said positioning projection being inserted into said positioning hole, to thereby position said lamp unit at a predetermined location in a protruding direction of said positioning projection; a first temporal fastening member protruded from one of said lamp unit and said frame member, and comprising a plurality of engaged parts arranged in a connected row arrangement in the protruding direction of said positioning projection; and a second temporal fastening member provided in the other one of said lamp unit and said frame member, and comprising engaging parts to be engaged with said engaged parts of said first temporal fastening member.

[0010] Therefore, by engaging the engaging parts of the second temporal fastening member with the engaged parts of the first temporal fastening member, the lamp unit can be temporarily attached to the frame member while the positioning projection is inserted in the positioning hole, and while the positioning abutment parts of the lamp unit and the outer panel member is in abutment with one another.

[0011] Further, the lamp mounting apparatus of the present invention, according to claim 2, is directed to the lamp mounting apparatus as recited in claim 1, and wherein the first temporal fastening member is a shaft-like member comprising a plurality of projections formed on an outer circumference thereof in a manner extending in a circumferential direction thereof.

[0022] Moreover, the lamp mounting apparatus of the present invention, according to claim 3, is directed to the lamp mounting apparatus as recited in claim 2, and wherein the second temporal fastening member comprises an annular member comprising engaging parts to be engaged with the projections of the first temporal fastening member, the engaging parts being formed on an inner circumferential surface of the second temporal fastening member.

[0013]

[Embodiments of the Invention]

The present invention will now be described in detail with reference to the accompanying drawings showing a preferred embodiment thereof.

[0014] FIG. 1 shows a vehicle 1 to which a lamp mounting apparatus according to an embodiment of the present invention is applied. As shown in FIG. 1, a pair of right and left lamp units 3 are arranged at respective front corners 2 of the vehicle 1. The lamp units 3 are extended from the front of the vehicle 1 toward right and left outer panel members, that is, front fenders 4, so that the lamp units 3 are connected without interruption to the front fenders 4. Thus, a front corner surface, which is comprised of a lens plane of the lamp unit 3 and a surface of the front fender 4, is formed as a smooth surface at each of the right and left front corners 2. It should be noted that the vehicle 1 to which is applied the lamp mounting apparatus for a vehicle according to the present embodiment is not limited to a passenger vehicle as shown in FIG. 1.

[0015] Each of the lamp units 3 is disposed in a lamp housing part 5 that is opened in the above described front corner surface. The lamp housing part 5 is surrounded by the front fender 4, a bumper 6, a front grille 7, and a hood 8. FIG. 2 is an enlarged top view showing the front corner 2 on the left side, in which component parts except for the hood 8 housed in the lamp housing part 5 are illustrated as being exposed.

[0016] The lamp unit 3 is implemented by a front combination lamp unit comprised of a head lamp 3a, a clearance lamp 3b, and a front turn signal lamp 3c, which are configured as an integral unit. The head lamp 3a and the clearance lamp 3b are directed to the front of the vehicle 1, and the front turn signal lamp 3c is directed to the side of the vehicle 1. It should be noted that the lamp unit 3 is not limited to the combination lamp as described above, but may be implemented by a lamp unit comprised of an auxiliary lamp such as a fog lamp or a corner ring lamp.

[0017] As shown in FIG. 2, the lamp units 3 are formed at the respective front corners 2 of the vehicle 1 in a manner extending from both ends of the front grille 7 toward the front fenders 4 in the direction of the vehicle width. A lamp housing 31 for each of the lamp units 3 is provided with two upper brackets 32, 32 protruded from the top of the housing 31. A side bracket 33 is protruded from one end of the front grille 7. The side bracket 33 and the upper brackets 32, 32 are abutted on a frame member 9 of the vehicle 1 from above and bolted to the frame member 9.

[0018] A positioning surface 34 is formed at a side end of the lamp housing 31 on the front fender side, and is abutted on a flange 41 of the front fender 4. A positioning projection 35 is formed on the positioning surface 34 of the lamp housing 31, and is inserted into a positioning hole 42 of the front fender 4. Further, the lamp housing 31 is provided with a temporal fastening pin 36 as a first temporal fastening member, and is engaged with a temporal fastening clip 10 as a second temporal fastening member.

[0019] As shown in FIGS. 2 and 3, the front fender 4 is bolted to the frame member 9 at predetermined locations thereof. Note that the front fender 4 may be mounted on the frame member 9 by welding or the like. At the front end of the front fender 4, the flange 41 protruded into the lamp housing part 5 is formed integrally with the side edge of an opening of the lamp housing part 5. The flange 41 is provided with the positioning hole 42 directed to the front of the vehicle 1.

[0020] As shown in Figs. 2 and 3, the frame member 9 is formed by welding and fixing a plurality of plates to each other, and is comprised of a frame 91 surrounding the lamp housing part 5. Nuts, not shown, are welded to a lower surface of the upper part of the frame 91 of the frame member 9, and bolts for fastening the upper brackets 32 are screwed into the nuts. A nut, not shown, is welded to a lower surface of the side end of the frame 91 on the front grill side, and a bolt for fastening the side bracket 33 is screwed into the nut. A rectangular hook hole 92 is formed in the side end of the frame 91 of the frame member 9 on the front fender side, and the temporal fastening clip 10 is fitted in the hook hole 92.

[0021] In a vehicle production line, the lamp unit 3 is mounted on the vehicle body after the vehicle body is assembled. On this occasion, the lamp unit 3 is engaged with the lamp housing part 5 through the front opening thereof, and positioned by the positioning projection 35, the positioning hole 42, the positioning surface 34, and the flange 41. The lamp unit 3 is then temporarily fastened by the temporal fastening pin 36 and the temporal fastening clip 10. A

detailed description will now be given of the structure for positioning and temporally fastening the lamp unit 3.

[0022] First, FIG. 4 is an enlarged view showing the periphery of the side end of the lamp unit 3 on the front fender side. The positioning projection 35 and the temporal fastening pin 36 are horizontally protruded from the lamp housing 31 for the lamp unit toward the rear of the vehicle body. The axes of the positioning projection 35 and the temporal fastening pin 36 are parallel with each other. The positioning projection 35, which is located closer to the side of the vehicle body than the temporal fastening pin 36, is fitted in the positioning hole 42 of the flange 41. The temporal fastening clip 10 is comprised of a frame part 101 which is rectangular as viewed from the front of the vehicle 1, and extended parts 102, 102, 102, 102 extending independently of each other toward the rear of the vehicle are formed at respective sides of the frame part 101. The extended parts 102, 102 formed at the two sides of the frame part 101 in the direction of the vehicle width are comprised of respective claw parts 103, 103 which are hooked on both side edges of the hook hole 92. The extended parts 102, 102 formed at the two sides of the frame part 101 in the direction of the height of the vehicle 1 is formed with engaging parts 104, 104 which are opposed to each other to sandwich the temporal fastening pin 36 therebetween from above and below.

[0023] FIG. 5 is a sectional view showing the positioning projection 35 as viewed from a line V-V in FIG. 4, and showing the details of a state in which the positioning projection 35 is fitted in the positioning hole 42 of the flange 41. As shown in FIG. 5, the positioning projection 35 is substantially cross-shaped at cross section, and right and left ends thereof are adjacent to the inner edge of the positioning hole 42. On the other hand, the positioning hole 42 is substantially round, and as viewed on cross section in FIG. 5, the upper, lower, right, and left ends of the positioning projections 35 are adjacent to the inner edge of the positioning hole 42. It should be noted that the positioning projection 35 is tapered at a slight angle from the base thereof toward the tip thereof. The positioning hole 35 is tapered at a greater angle at the tip thereof, and is thus guided into the positioning hole 42 from the tip thereof, so that the positioning projection 35 can be inserted smoothly into the positioning hole 42.

[0024] Therefore, even if the axis of the positioning projection 35 is deviated from the center of the positioning hole 42 in the directions of the height and width of the vehicle 1 when the lamp unit 3 is pressed into the lamp housing part 5 through the front opening thereof, the

deviation is corrected when the positioning hole 35 is inserted into the positioning hole 42 as described above. Then, after the positioning hole 34 is abutted on the flange 41 to completely fit the positioning projection 35 into the positioning hole 42, the positioning projection 35 is never deviated from the center of the positioning hole 42 in the directions of the height and width of the vehicle 1. On this occasion, as the positioning projection 35 is inserted into the positioning hole 42, the positioning projection 35 is increased in width, so that the positioning projection 35 can be tightly fitted in the positioning hole 42 and prevented from being easily pulled out from the positioning hole 42.

[0025] At the front corner 2 of the vehicle body, the side edge of the lamp unit 3 and the side edge of the opening of the lamp housing part 5 are formed such that they are aligned with each other in a state in which the lamp unit 3 is disposed in the lamp housing part 5. On this occasion, as shown in FIG. 5, the positioning projection 35 is disposed at such a location that the center thereof is located at a predetermined distance L away from the lower end of the side edge of the lamp unit 3 in the horizontal direction. On the other hand, the positioning hole 42 is disposed at such a location that the center thereof is located at the predetermined distance L away from the lower end of the side edge of the opening of the lamp housing part 5 in the horizontal direction. Therefore, when the positioning projection 35 has been fitted into the positioning hole 42, the center of the positioning projection 35 and the center of the positioning hole 42 correspond to each other in the horizontal direction, so that the side edge of the lamp unit 3 and the side edge of the opening of the lamp housing part 5 can be perfectly aligned with each other.

[0026] FIG. 6 is a sectional view of the temporal fastening pin 36 and the temporal fastening clip 10 taken along line VI-VI in FIG. 4. As shown in FIG. 6, the temporal fastening pin 36 is a shaft-like member comprised of a plurality of projections 361 formed on the outer circumference thereof in a manner extending in the circumferential direction thereof. The plurality of projections 361 are provided in a connected row arrangement in the axial direction of the temporal fastening pin 36, and function as parts to be engaged, with which the engaging parts 104 of the temporal fastening clip 10 are to be engaged. The temporal fastening pin 36 is fixed to the lamp unit 3 by screwing a thread thereof into a mounting boss of the lamp housing 31. Although in the present embodiment, it is assumed that the temporal fastening pin 36 is screwed into the lamp housing 31, but may be protruded integrally from the lamp housing 31.

[0027] The temporal fastening clip 10 has the claws 103, 103 thereof hooked on both side edges of the hook hole 92 of the frame member 9. Each of the extended parts 102, 102, 102, 102 formed at the respective sides of the frame part 101 is inserted into the hook hole 92, and as viewed in FIG. 6, the insertion vertical width thereof is set to be slightly smaller than the vertical width of the hook hole 92, so that the temporal fastening clip 10 can be slightly displaced in the vertical direction. As viewed on cross section in FIG. 6, the above-mentioned engaging parts 104, 104 are substantially triangular, and are engaged with the projections 361 in such a manner as to sandwich the projections 361 therebetween from above and below. Both of the engaging parts 104, 104 are extended to have the same shape at cross section in the direction of the vehicle width, and hence even if the axis of the temporal fastening pin 36 is slightly deviated from the center of the temporal fastening clip 10, the engaging parts 104, 104 can be engaged with the projections 361 of the temporal fastening pin 36. Further, an inclined surface 105 is formed along the peripheral edge of an opening formed in the front face of the frame part 101. It should be noted that the temporal fastening clip 10 is made of a polyacetal material, for example, to provide the extended parts 102, 102, 102, 102 with suitable elasticity.

[0028] FIG. 7 illustrates a state in which the temporal fastening pin 36 is hooked on the temporal fastening clip 10 when the lamp unit 3 is temporarily fastened onto the frame member 9. When the lamp unit 3 is pressed into the lamp housing part 5 through the front opening, and the positioning projection 35 is inserted into the positioning hole 42, a head 362 of the temporal fastening pin 36 is abutted on the inclined surface 105 of the frame part 101 in the temporal fastening clip 10 first, and then presses the inclined surface 105 to displace the temporal fastening clip 10 upward, so that the temporal fastening pin 36 is inserted into the opening of the frame part 101. As the lamp unit 3 is further pressed into the lamp housing part 5, the temporal fastening pin 36 is inserted between the engaging parts 104, 104 in such a manner as to push the upper and lower extended parts 102, 102 outwardly. As the lamp unit 3 is pressed into the lamp housing part 5 against the elastic force of the upper and lower extended parts 102, 102, the temporal fastening pin 36 moves inside the temporal fastening clip 10 toward the rear of the vehicle 1 while being repeatedly engaged with and disengaged from the projections 362 and the engaging parts 104, 104. When the positioning surface 34 of the lamp unit 3 has been abutted on the flange 41 of the front fender 4 to complete the positioning of the lamp unit 3, the temporal

fastening pin 36 stops moving to complete the temporal fastening of the lamp unit 3 onto the frame member 9.

[0029] Thereafter, when the lamp unit 3 is fitted into the lamp housing part 5, the lamp unit 3 is temporarily fastened in the periphery of an end thereof due to the engagement between the temporal fastening pin 36 and the temporal fastening clip 10, and the above-mentioned upper brackets 32, 32 and the side brackets 33 are positioned in bolt holes at the same time, so that they can be easily fastened thereafter.

[0030] In this way, when the lamp unit 3 is fitted into the lamp housing part 5, the positioning projection 35 is fitted into the positioning hole 42 until the positioning surface 34 is abutted on the flange 41, so that the lamp unit 3 can be positioned with respect to the front fender 4 in the directions of the height and width of the vehicle 1 by means of the positioning projection 35 and the positioning hole 42, and the lamp unit 3 can be positioned with respect to the front fender 4 in the direction of the length of the vehicle 1 due to the engagement between the positioning surface 34 and the flange 41. Further, the engagement of the temporal fastening pin 36 with the temporal fastening clip 10 can prevent the positioning surface 34 of the lamp unit 3 from moving in a direction to depart from the flange 41, and keep the lamp unit 3 positioned. Further, pressing the lamp unit 3 into the lamp housing part 5 against the elastic force of the upper and lower extended parts 102, 102 enable the temporal fastening pin 36 to move inside the temporal fastening clip 10 toward the rear of the vehicle 1 while being repeatedly engaged with and disengaged from the projections 361 and the engaging parts 104, 104. Therefore, even if the relative positions of the front fender 4 and the frame member 9 are not uniform in the direction of the length of the vehicle 1, the lamp unit 3 can be positioned with respect to the front fender 4 and temporarily fastened onto the frame member 9.

[0031] As described above, the lamp mounting apparatus according to the embodiment of the present invention temporarily fastens the lamp unit 3 onto the frame member 9 by positioning the lamp unit 3 on the front fender 4 in all of the directions of the height, width, and length of the vehicle 1, and keeps the lamp unit 3 positioned until the lamp unit 3 is really fastened onto the frame member 9 by bolting or the like.

[0032] It is to be noted that the above described way of positioning and fastening the lamp unit 3 is suitably applied to mechanical work using industrial robots. Specifically, when the lamp unit 3 is mounted, the positioning projection 35 can be inserted smoothly into the positioning

hole 42 even if the axis of the positioning projection 35 is slightly deviated from the center of the positioning hole 42 as described above. Further, even if the center of the temporal fastening clip 10 is slightly deviated from the axis of the temporal fastening pin 36, the temporal fastening clip 10 is guided by the head 362 of the temporal fastening pin 36 to cause the temporal fastening pin 36 to be inserted into the opening of the frame part 101 without fail. Therefore, it is unnecessary to finely adjust the positions of the temporal fastening clip 10 and the temporal fastening pin 36 when mounting the lamp unit 3.

[0033] It is to be understood that the present invention is not limited to the embodiment described above, but various variations of the above described embodiment may be possible without departing from the spirits of the present invention. For example, the cross section of the positioning projection 35 should not necessarily be cross-shaped as shown in FIG. 5, but may be round or oblong. Further, in the above described embodiment, the temporal fastening pin 36 is round at cross section, but may be square or the like at cross section.

[0034] Further, the positioning projection 35 may be formed on the flange 41, and the positioning hole 42 may be formed in the lamp housing 31. Further, the temporal fastening pin 36 may be formed on the frame member 9, and the temporal fastening clip 10 may be provided in the lamp housing 31. In this case, by fitting the lamp unit 3 into the lamp housing part 5 in the same manner as in the above described embodiment, the lamp unit 3 can be positioned with respect to the front fender 4 and temporarily fastened onto the frame member 9.

[0035] Further, although in the above described embodiment, the lamp unit 3 is mounted in the direction of the length of the vehicle 1, the lamp unit 3 may be mounted in the direction of the width of the vehicle 1, for example. In this case, the lamp unit 3 is positioned in three directions rotated at respective predetermined angles from three directions along the height, width, and length of the vehicle 1, and as a result, the lamp unit 3 can be positioned in the directions of the height, width, and length of the vehicle 1. Further, in the case where the lamp mounting apparatus according to the present invention is applied to a rear corner of a vehicle, the surface of the rear corner can be formed as a smooth surface as is the case with the above described embodiment.

[0036]

[Effect of the Invention]

As stated above in detail, according to the lamp mounting apparatus of the present invention, the lamp unit is temporarily attached to the frame member while positioned to the outer panel in vertical, left-right, and longitudinal directions, and the lamp unit can be maintained at the positioned state.

[BRIEF DESCRIPTION OF THE DRAWINGS]

[Fig. 1]

FIG. 1 is a perspective view showing a vehicle to which a lamp mounting apparatus according to an embodiment of the present invention is applied.

[Fig. 2]

FIG. 2 is a view showing a lamp unit mounted in a lamp housing part.

[Fig. 3]

FIG. 3 is a perspective view showing a front end of a front fender and a frame member.

[Fig. 4]

FIG. 4 is an enlarged view showing a fixed end of the lamp unit.

[Fig. 5]

FIG. 5 is a sectional view taken along line V-V in FIG. 4.

[Fig. 6]

FIG. 6 is a sectional view taken along line VI-VI in FIG. 4.

[Fig. 7]

FIG. 7 is a view showing a state in which a temporal fastening pin is hooked on a temporal fastening clip.

[Description of Reference Numerals]

- | | |
|----|---------------------|
| 1 | vehicle |
| 2 | front corner |
| 3 | lamp unit |
| 31 | lamp housing |
| 32 | upper brackets |
| 33 | side bracket |
| 34 | positioning surface |

35	positioning projection
36	temporal fastening pin (first temporal fastening member)
361	projections (engaged part)
362	head
4	front fenders
41	flange
42	positioning hole
5	lamp housing part
6	bumper
7	front grille
8	hood
9	frame member
91	frame
92	hook hole
10	temporal fastening clip (second temporal fastening member)
101	frame part
102	extended parts
103	claw parts
104	engaging part
105	inclined surface

[Name of Document] Abstract

[Object] To provide a lamp mounting apparatus with improved positioning.

[Abstract] A lamp mounting apparatus includes: a positioning projection 36 protruding from one of an outer panel member 4 and a lamp unit 3; a positioning hole formed in the other one of the outer panel member 4 and the lamp unit 3, and into which the positioning projection 36 is capable of being inserted; positioning abutment parts 34, 41 provided in respective ones of the lamp unit 3 and the outer panel member 4, and are abutted on each other with the positioning projection 36 being inserted into the positioning hole 42, to thereby position the lamp unit 3 at a predetermined location in a protruding direction of the positioning projection 36; a first temporal fastening member 36 protruded from one of the lamp unit 3 and the frame member 9, and comprising a plurality of engaged parts arranged in a connected row arrangement in the protruding direction of the positioning projection 36; and a second temporal fastening member 10 provided in the other one of the lamp unit 3 and the frame member 9, and comprising engaging parts to be engaged with said engaged parts of the first temporal fastening member 36.

[Selected Drawing] Fig. 4

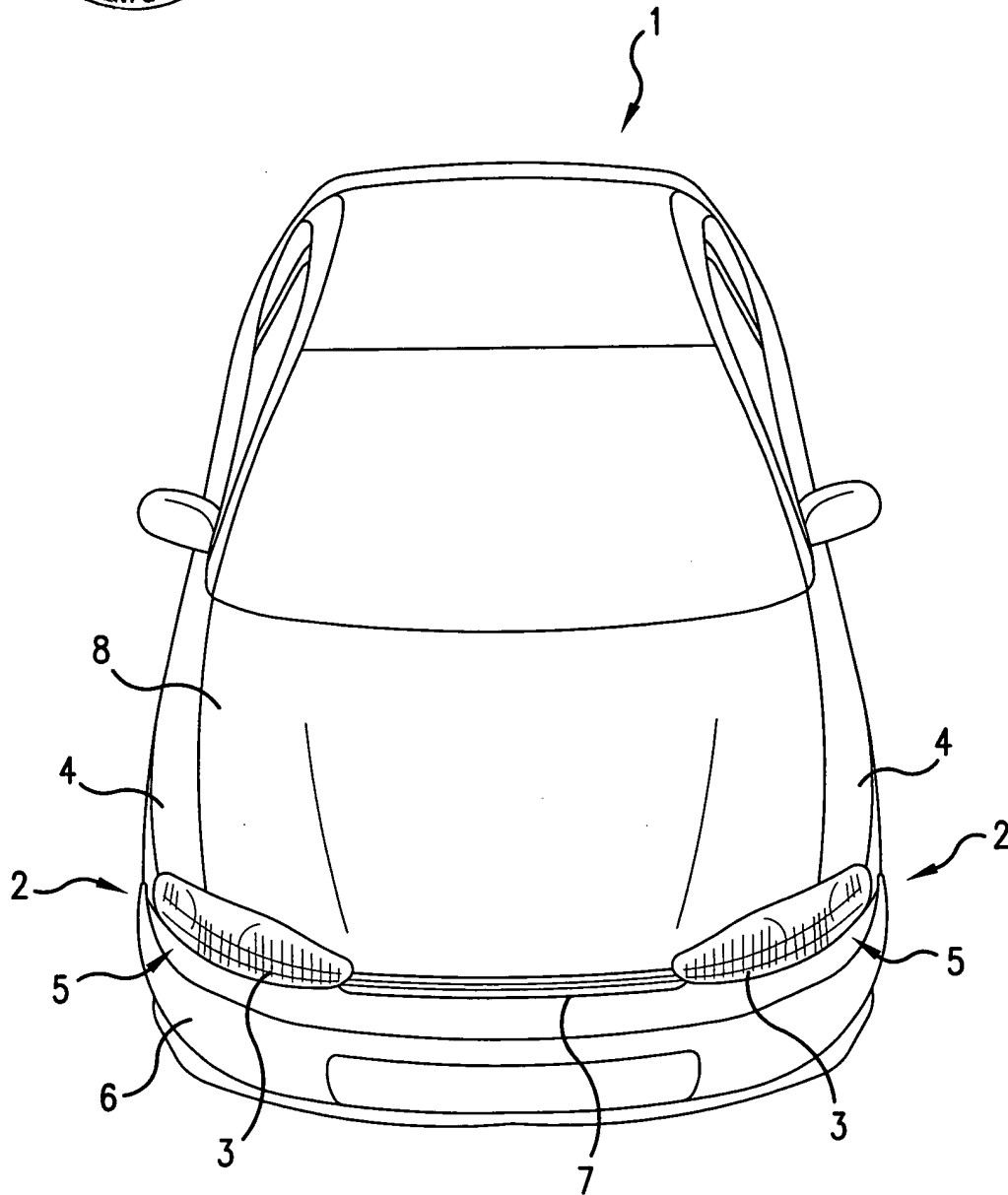
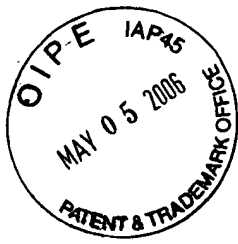


FIG.1

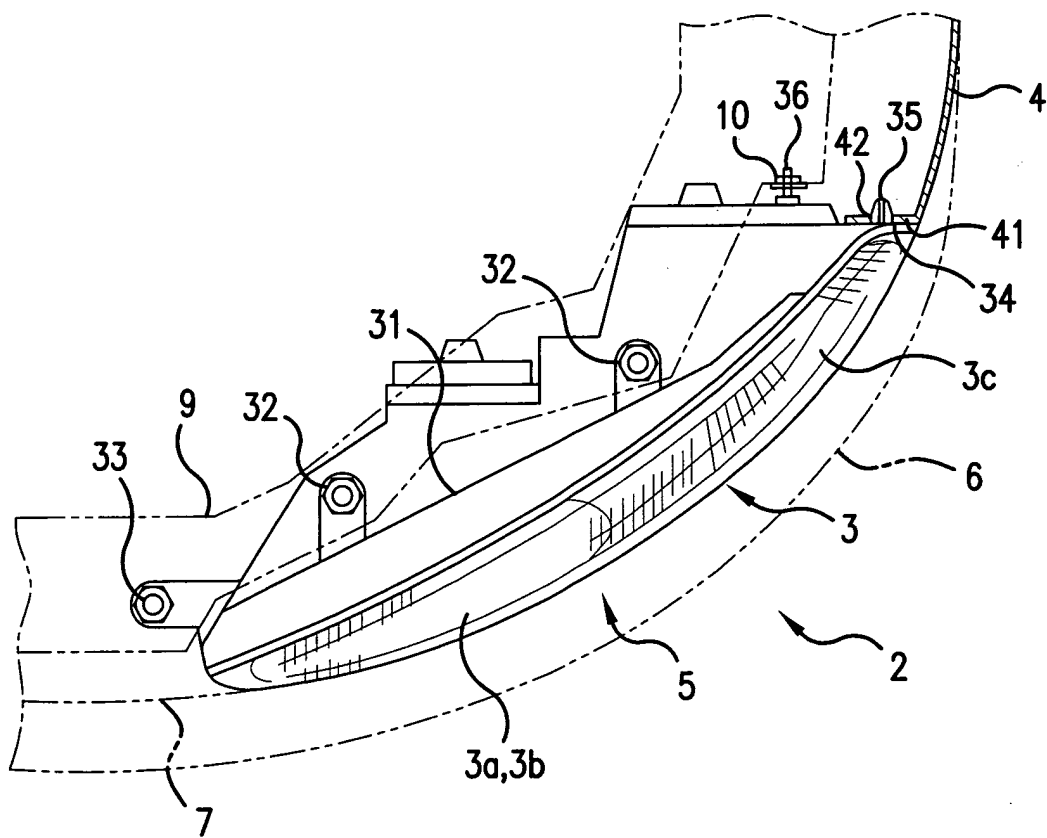


FIG.2

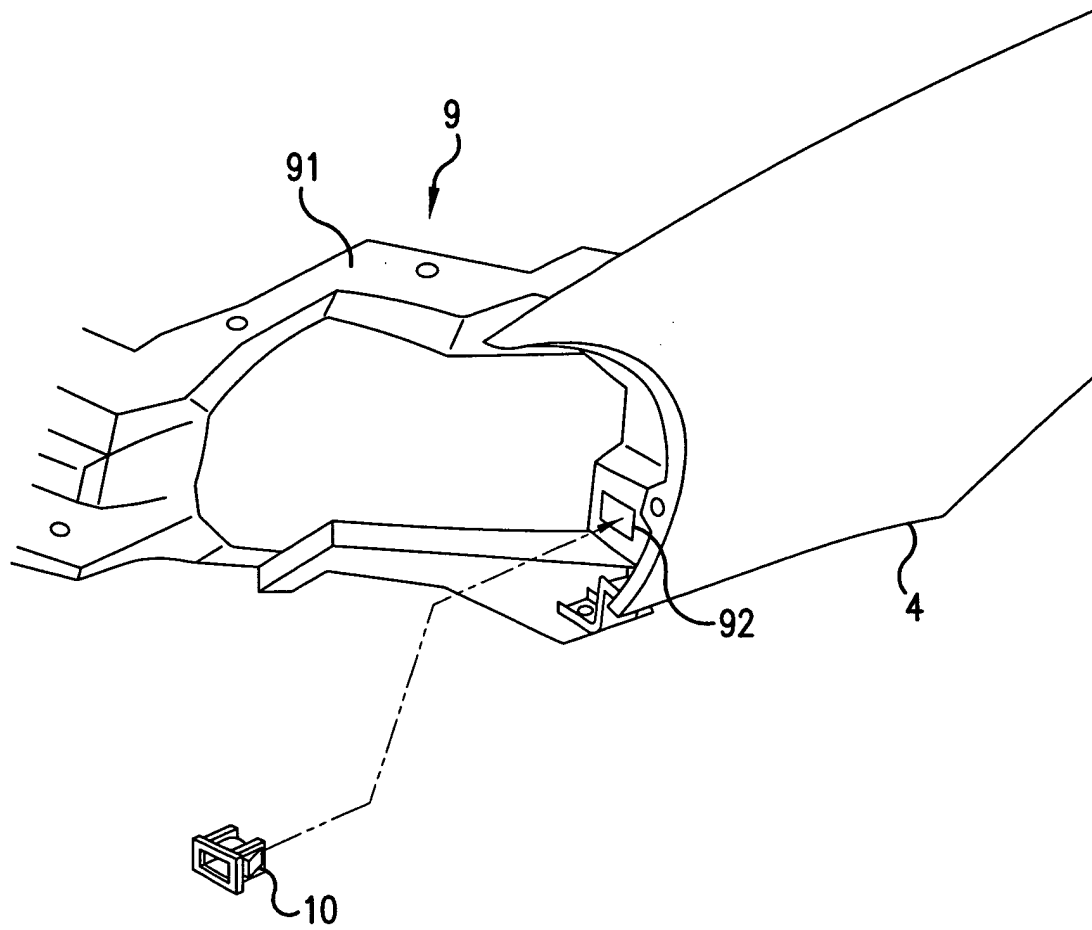


FIG.3

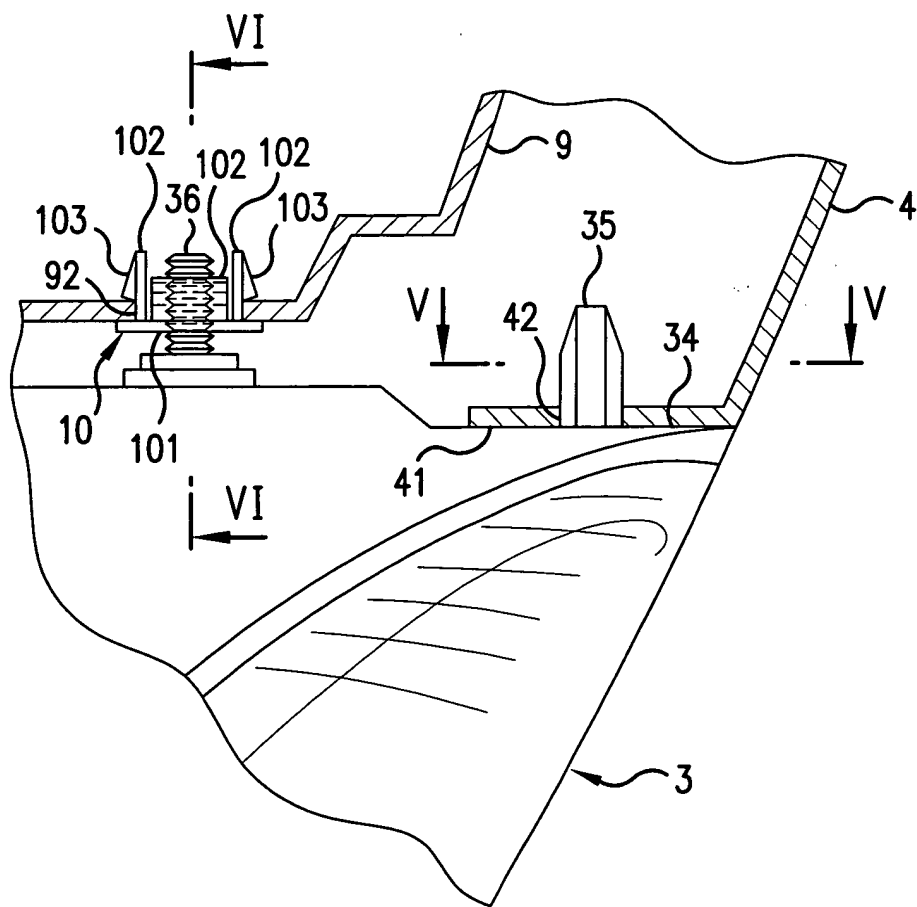


FIG.4

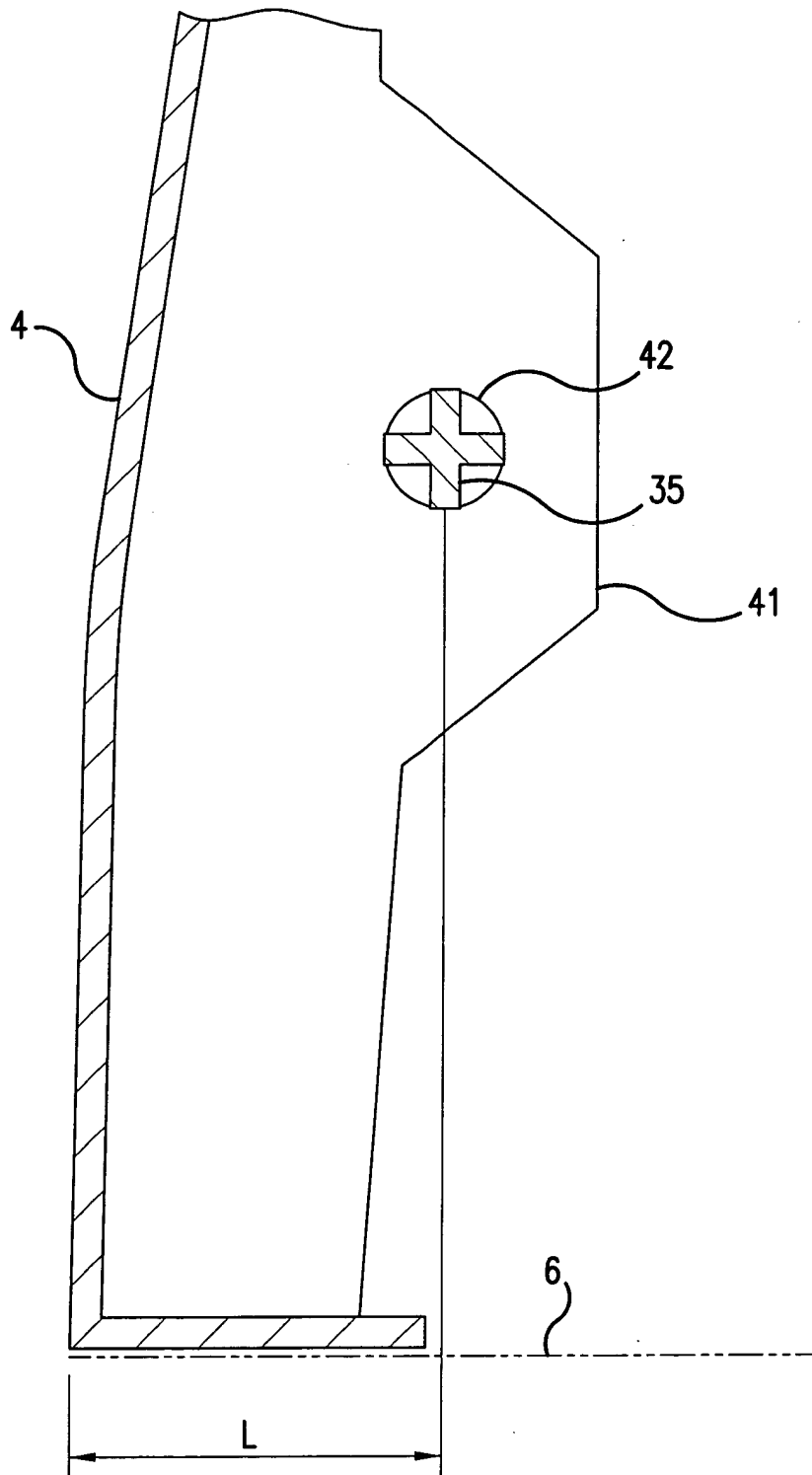


FIG.5

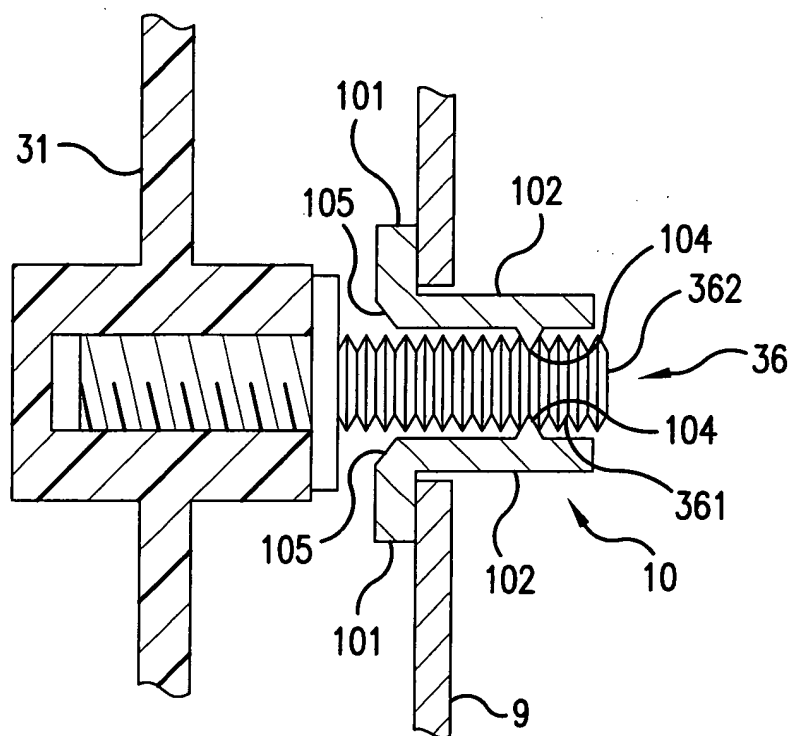


FIG.6

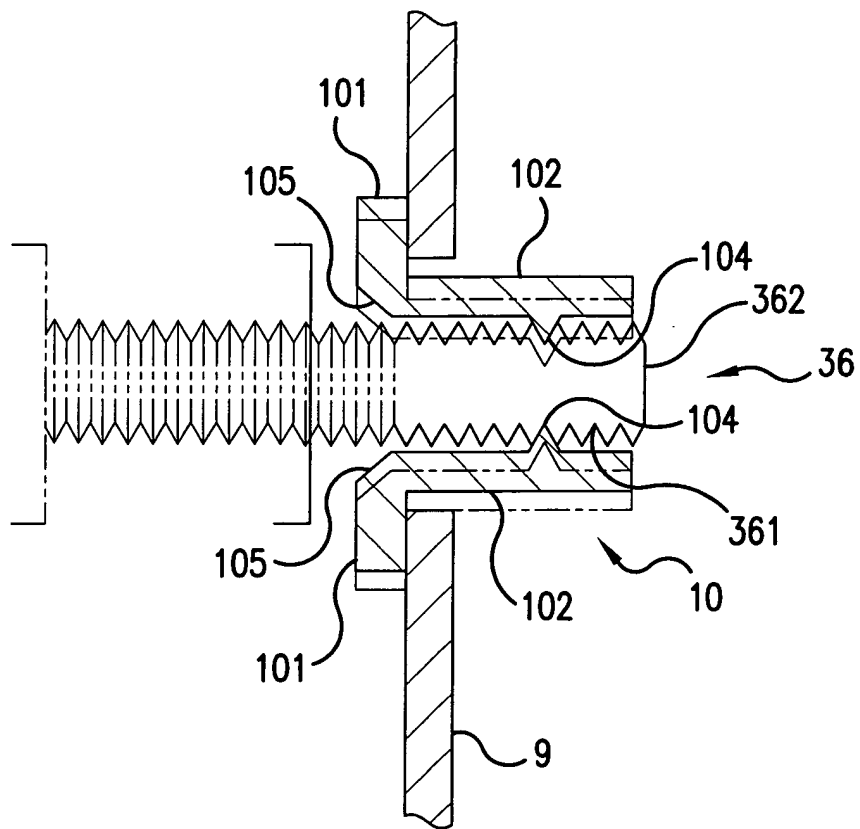


FIG.7